

ruled to westward from the North Cape to the Straits of Gibraltar, strong northerly winds swept over the whole of Western Europe, and the temperature everywhere fell below the average of the season, the defect being $4^{\circ}3$ in the north of Norway, $4^{\circ}0$ in Farø, $4^{\circ}4$ in Islay, $2^{\circ}8$ in Jersey, and $5^{\circ}6$ in Portugal. This area of low temperature stretched eastward into Europe as far as Vienna, Trieste, and Mentone.

To the east of the line of lowest pressure within the great barometric depression which covered all Europe except its extreme outskirts, temperatures were above the average, and greatly so as far east as the head waters of Yenisei, and thence round by Taschkend, Syria, and the north of Africa. Over the greater portion of this broad region the excess was not less than $5^{\circ}0$, and in the north of the Black Sea it reached as high as $9^{\circ}4$ above the normal. In Eastern Siberia, Mantchooria, and Northern China very low temperatures prevailed, a deficiency of $8^{\circ}1$ being recorded on the Upper Amoor.

The chief features of the meteorology of the northern hemisphere for November, 1878, and they are very striking, were these:—(1) The almost unprecedentedly high temperature, amounting to from $6^{\circ}0$ to $13^{\circ}7$ above the average over a large part of the United States, from $6^{\circ}8$ to $9^{\circ}5$ above the average over West Greenland; an excess of from $5^{\circ}0$ to $9^{\circ}5$ over nearly the whole of European Russia and Western Siberia; (2) large and extensive barometric depressions formed in conjunction with these most anomalous temperatures; and (3) the formation of an area of high pressure—inclosed within remarkably steep gradients of mean monthly pressure—over mid-Atlantic, extending thence in a north-easterly direction over Iceland toward Spitzbergen. To this it may be added that, whilst the high temperature anomaly of the surrounding low pressure regions rose to $13^{\circ}7$ in the United States, $9^{\circ}5$ in Greenland, and $9^{\circ}4$ in Europe, the low temperature anomaly of the included region of high pressure fell only to $5^{\circ}6$ below the normal at Coimbra, but over no great extent did it fall lower than $4^{\circ}0$ below the normal.

The U.S. Weather Maps for December, 1878, and subsequent months, when low temperature anomalies were their out-standing features, will be looked forward to with the greatest interest as likely to throw light on the development of the meteorological conditions which impressed so arctic a character on our British weather during 1878–79. In connection with this large problem it is impossible to overestimate the vital importance of a serious and searching inquiry into the causes which brought about the high temperature anomalies of the United States, Greenland, and Russia. It is to these anomalies in all likelihood we must look for an explanation of the origin of the high pressure in the included region of the North Atlantic, which was undoubtedly the immediate cause of the strong northerly winds and low temperatures which then prevailed over Western Europe.

NOTES

PROF. W. CHANDLER ROBERTS, F.R.S., will deliver the introductory lecture to his course of Metallurgy, on Monday next, October 4, at three o'clock, at the Science Schools, South Kensington Museum.

MR. A. C. HADDON, Demonstrator of Comparative Anatomy in the University of Cambridge, with the sanction of the authorities, instead of conducting his class as usual during the Long Vacation at Cambridge, made the novel experiment last summer of taking it to the shores of Torbay, where he established a temporary zoological station on the principle of that at Naples, whither he himself had formerly been sent by the University to

study. The attempt was very successful, and will doubtless be repeated another year. It was found that in addition to the ordinary class-fee of one guinea, a fee of four guineas covered the expenses of the extemporised laboratory, which was sufficiently provided with the instruments and appliances requisite in the present state of zoological study, as well as those of boat-hire for the dredging and surface-skimming excursions that formed the chief outdoor-work of the class, throughout the seven weeks of its stay; while embryological and histological dissections, together with the preparation and preservation of marine specimens for the University Museum, afforded constant occupation at home. The books, mostly monographs, needed for the determination and proper examination of the animals captured, were supplied by the superintendent of the museum, Mr. J. W. Clark, and the class received much valuable assistance from Mr. A. R. Hunt, whose intimate knowledge of the fauna of Torbay was freely placed at its disposal.

MR. MCGIBBON, the Superintendent of the Botanic Gardens, Cape Town, South Africa, a position which he has filled for thirty years, retires on a pension of 150*l.* a year. A movement is on foot to remove the Gardens from their present contracted site in Cape Town itself, and to create in the neighbourhood of the city a botanical establishment more worthy of the seat of South African Government. As a first step the appointment of Director has been offered to the well-known Cape botanist Prof. MacOwan, of Gill College, Somerset East. It is, however, doubtful whether the state of his health will allow of his undertaking it.

ON the 21st inst. there died at his residence in Camberwell, at the advanced age of 89, Charles Johnson, who for more than forty-four years held the post of Professor of Botany at Guy's Hospital. He was editor of Sowerby's "English Botany," author of "Grasses of Great Britain," "British Poisonous Plants," "Ferns of Great Britain," and other valuable contributions to natural history. In early life he took up the study of natural science, being one of the first members of the City Philosophical Society, of which Dr. Faraday and other eminent men were fellow-members. He was a high authority on agriculture and all subjects connected with economic botany.

THE death is announced of Prof. Samuel Stehman Haldeman, Professor of Comparative Philology in the Pennsylvania University, at the age of sixty-eight years. In 1836 he was employed in the geological survey of New Jersey, and in the following year in that of his native State, Pennsylvania. Dr. Haldeman filled the chair of Natural History in the University of Philadelphia and in a Delaware college, and was Professor of Geology and Chemistry to the State Agricultural Society of Pennsylvania prior to accepting the post which he held at his death. Other deaths announced are, on August 27, Dr. Hanstein, Professor of Botany and director of the Botanic Garden at Bonn; and on August 21, Prof. E. B. Andrews, of the Geological Survey of Ohio, the author of several important contributions to the geology of that State.

MR. DARWIN has forwarded to us an article contributed to an American medical journal by Dr. B. G. Wilder, Professor of Physiology in Cornell University, on "The Two Kinds of Vivisection—Sentisection and Callisection;" as he thinks the suggestion therein contained deserves consideration in this country. "All well-informed persons," Dr. Wilder writes, "are aware that the vast majority of vivisections, in this country at least, are performed under the influence of anaesthetics; but the enthusiastic zoölaters, who desire to abolish the objective method of teaching physiology, practically ignore this fact, and dwell chiefly upon the comparatively infrequent operations which are attended with pain. Having read the

arguments upon both sides and had some correspondence with leaders of the anti-vivisection movement, I have been led to think that the discussion may be simplified, and a right conclusion sooner reached, if we adopt new terms corresponding to the two kinds of experimentation. Having waited long in the hope that some candid discussion of the whole subject might contain the needed terms, I venture to suggest that painful vivisection be known as *sentisection*, and painless vivisection as *callisection*. The etymology of the former word is obvious; the distinctive element of the latter is the Latin *callus*, which, in a derived sense, may denote a nervous condition unrecognised, strictly speaking, by the ancients. Some idea of the relative numbers of callisectionists and sentisectionists may be gained from the fact that I have been teaching physiology in a university for twelve years, and for half that time in a medical school; yet I have never performed a sentisection, unless under that head should be included the drowning of cats, and the application of water at the temperature of 60° C. (140° F.), with the view to ascertain whether such treatment would be likely to succeed with human beings. I think that even elementary physiological instruction is incomplete without callisection, but that sentisection should be the unwelcome prerogative of the very few whose natural and acquired powers of body and mind qualify them above others to determine what experiments should be done to perform them properly, and to wisely interpret the results. Such men, deserving alike of the highest honour and the deepest pity, should exercise their solemn office not only unrestrained by law, but upheld by the general sentiment of the profession and the public."

AMERICAN papers speak of remarkable clouds of flies that have visited various districts. At East Pictou, Nova Scotia (about 44° 50' N., 63° W.), such a cloud was seen on August 21. "They passed Lismore about six o'clock in the evening close to the shore. They went with the wind, which was blowing lightly from the west, occupying about twenty minutes passing a given point. They made a loud buzzing noise, which was heard by many who missed seeing them. They flew so low that some of them appeared to fall into the water. About two miles below Lismore they slightly changed their flight, heading more to the north. After their passage numbers of strange flies were observed in some of the houses near the shore. They were about half an inch in length, with wings proportionately longer than those of the common house-fly, but whether they belonged to the swarm is uncertain." At Halifax, Nova Scotia, immense swarms passed over Guysboro' (lat. 44° 40' N., long. 61° 30' W.), on September 5. They came from the east and resembled a dark cloud. A communication from Poughkeepsie, New York (lat. 41° 50' N., long. 74° W.) states that a storm of flies was encountered on the Hudson River on the afternoon of September 4. The steamer *Martin*, bound south, encountered the fly storm between New Hamburg and Newburgh. It seemed like a great drift of black snow, and it reached southward from shore to shore as far as the eye could reach. There were millions upon millions of the flies, and they hurried northward as thick as snow-flakes driven by a strong wind. They were long and black and had light wings, and the cloud must have been miles in length. Our readers may remember that some weeks ago we recorded a somewhat similar phenomenon as having been seen in various parts of France.

A VERY successful attempt has been made to measure a base-line, near Aarberg, for the triangulation of Switzerland. The first measurement gave 2400'·087 metres; the second, made independently of the first, gave 2400'·085 metres as the result, the difference between the two being thus only two millimetres. The measurement was made under the direction of the Spanish General Ibanez, who invented the instrument by which the work

was done. The place selected for the line is on the Sisselen road, which presents here an almost straight and level line of three kilometres.

A CONGRESS is to be held from October 1 to 10 at Saragossa, to discuss matters relating to the phylloxera.

THE "Elephant Sugar Cane" of Cochin China, which is said, though this requires confirmation, to reach a height of eleven feet and a diameter of seven inches in six months, has been successfully introduced by the Royal Gardens, Kew, from Saigon, into Jamaica. The rather sensational reputation of this variety has excited a good deal of interest in it amongst the West Indian planters.

MR. ROLAND TRIMEN, the Curator of the South African Museum, has arrived in this country.

THE Annual Report of the Smithsonian Institute for 1878 shows that it continues to be as active as ever in the advancement of scientific knowledge. In all its departments a vast amount of work has been done during the year, much of this work being really of an international character. Many valuable additions were made to the National Museum during the year, and several monographs of the first importance published. One of the principal papers in the volume is a memoir of the late Prof. Joseph Henry, by Prof. Asa Gray. About 100 pages are devoted to a paper by Mr. W. B. Taylor on "Henry and the Telegraph," and another long paper describes Henry's researches on sound, with special reference to fog-signalling. Other papers are a translation of Arago's biography of Condorcet; Ernest Favre's biographical notice of Louis Agassiz; "The Effect of Irritation of a Polarised Nerve;" "Pflüger's Electrotonus," by Dr. B. F. Lautenbach; "Researches on Fever," by Dr. H. C. Wood; "Constants of Nature," by Prof. John LeConte; list of apparatus relating to heat, light, electricity, magnetism, and sound, available for scientific researches involving accurate measurements, in various institutions in the United States; "Ornithological Exploration of the Caribbee Islands," by Mr. F. A. Ober; "Report of Explorations in Greenland," by L. Kumlein.

VOL. XVI. of the *Transactions and Proceedings* of the Royal Society of Victoria contains the results of a very satisfactory year's work. The following are among the papers in this volume:—"On the Relation between Forest Lands and Climate in Victoria," by R. L. J. Ellery, F.R.S.; "Experiments on the Tensile Strength of a few of the Colonial Timbers," by Fred. A. Campbell, C.E.; "The Diorites and Granites of Swift's Creek and their Contact Zones, with Notes on the Auriferous Deposits," by A. W. Howitt, F.G.S.; "On the Genus *Amathia* of Lamarroux, with a Description of a New Species," by the Rev. J. E. Tenison-Woods, F.G.S., &c.; "Notes on the Customs of Mota, Banks Islands," by the Rev. R. H. Codrington, M.A., Oxford, with Remarks by the Rev. Lorimer Fison, Fiji; "Some New Localities for Minerals in Victoria," by J. Cosmo Newberry; "The Tidal Datum of Hobson's Bay," by R. L. J. Ellery, F.R.S.; "Notes on the Geology of the West Tamar District, Tasmania," by Norman Taylor; "Observations of the Outer Satellite of Mars in 1879," by E. J. White, F.R.A.S. Williams and Norgate are the London agents of this Society.

THE Government of India has offered the prize of 100l. for the best "Manual of Hygiene," to serve as a text-book for the use of the British soldiers in that country. Works submitted in competition for this prize must be sent in by their authors to the Secretary to the Government of India in the Military Department at Calcutta, so as to reach his hands not later than the last day of next March. The work is "to be written in clear and simple English, and thoroughly practical, showing the ordinary causes

affecting health, and the special dangers to which British soldiers are exposed in India, more particularly during their first year in the country, and the best means by which those dangers may be averted." The work, if accepted, will be printed at the public expense, and become the property of the State; and it is not to exceed in bulk "more than fifty or sixty pages of print, of small pica, octavo size."

AN ingenious method for obviating the frequent stoppage of trains at stations, and yet accommodating the passengers from these stations, has been devised by M. Hanrez. A "waiting carriage," comprising a steam-engine with special gear, and space for passengers and luggage, is placed on a siding at the station, and picked up by the train as it goes past. The latter, by means of a hook on its last carriage, catches a ring supported on a post, and connected with a cable wound on a drum in the waiting carriage. Thereupon the drum begins to unwind, and in doing so compresses a system of springs, while the carriage is moved at a rate gradually increasing to that of the train. The engine of the carriage then winds in the cable, the train and carriages are connected, passengers are transferred (the carriages being of the American type) from the joined carriage to the train, and *vice versa*, then the two are disconnected, and the engine of the carriage, working on the wheels, brings it back to the station whence it was taken.

MR. R. TUCKER writes:—A verification of M. Landry's statement (NATURE, vol. xxii. p. 495) may be acceptable:—

$$2^{26} + 1 = 2^{64} + 1 = 18446744073709551617 \\ = 274177 \times 67280421310721.$$

THOSE of our readers who have girls to educate we recommend to consult the Queen's College Calendar for 1880-81, published by Macmillan and Co.

THE Sanitary Institute seems to have had a very successful meeting last week, all the usual topics embraced in its programme coming on for discussion. Dr. B. W. Richardson gave a very interesting and instructive lecture on "Woman as a Sanitary Reformer," one of the first conditions being her education in physiology and such other sciences and arts as bear on every-day household life. Dr. Richardson made it clear that if women were educated as they ought to be they would be an immense power in keeping houses and households in a healthy condition.

WE have received the new calendar of the Newcastle College of Science. The classes in this institution now include mathematics, experimental physics with laboratory, chemistry with laboratory, geology, including geological surveying, natural history, land surveying, mining, modern history, French, German, mechanical drawing.

ABOUT 88,000*l.* has now been subscribed towards the cost of the projected new University College at Liverpool, and little more will be needed to make up the amount required. It was originally intended to raise 80,000*l.* for the endowment of seven professorships and two lectureships; but part of the money subscribed (about 7,000*l.*) has been contributed towards the foundation of a Roscoe chair of art—a professorship not originally contemplated; Lord Derby gives 10,000*l.* to found a chair of natural history; Messrs. William, S. G., and P. H. Rathbone give a like sum to found a King Alfred chair of modern history and literature; Mr. A. H. Brown, M.P., and Messrs. Cressfield and Barrow also give 10,000*l.* to found a chair of ancient history; Mrs. Grant subscribes a similar amount to found a chair in some branch of science; and 10,000*l.* is given by the trustees of the late Mr. Roger Lyon Jones to the Royal Infirmary School of Medicine, to found a chair of experimental physics, with which mathematics will be for the time associated. Between 7,000*l.* and 8,000*l.* has been subscribed towards founding a chair

of philosophy, logic, and political economy. Though the endowment funds are nearly complete, there remains the cost of a building to be provided.

WE have received from Madras Dr. Oppert's work "On the Weapons, Army Organisation, and Political Maxims of the Ancient Hindus, with special reference to Gunpowder and Firearms."

THE Aristotelian Society, which was founded last spring for the systematic study of philosophy, has just completed its work for this session, having studied philosophy from Thales to Proclus. The session for 1880-81 will open on October 11 at 20, John Street, Adelphi, at 8 p.m., when an introductory address will be delivered by the President, Mr. Shadworth H. Hodgson, LL.D., on "Philosophy in Relation to its History." During the session the Society intends to study mediæval philosophy, and the whole of modern philosophy, from Bacon to Comte and Spencer.

A SOCIETY for the Promotion of Agricultural Science has been formed in the United States, which will meet annually for the reading of papers, and which will in other ways endeavour to encourage scientific research in connection with agriculture. Such papers as are likely to be of permanent value will be published. Prof. W. J. Beal of Lansing, Michigan, is president of the society.

AT the last meeting of the Balloon Society a letter was read from M. de Fonvielle offering to bring over a balloon with a gas capacity of 42,000 feet, and compete with Mr. Wright in his balloon, both balloons to start simultaneously from the Crystal Palace in a contest for the longest aerial distance travelled in some particular direction. The proposal was referred to a committee.

WE have received a handsome quarto publication, "Contributions to the Archæology of Missouri, by the Archaeological Section of the St. Louis Academy of Science." This first part is devoted to Pottery; it will be followed by others, the object being to furnish to those interested in the archæology of the country, a reliable statement of facts connected with the occurrence of prehistoric remains in this important region. The present volume contains a general description of the south-eastern Missouri district and of the pottery which has been found in such abundance in the burial mounds of that region. Several charts and plans and figures of characteristic specimens of the pottery, beautifully drawn and lithographed, have been selected for illustration. The authors of the two papers in the volume are Mr. W. B. Potter and Dr. E. Evans. Should the present venture meet with encouragement other volumes may soon be expected treating of "Implements," "The Construction and Grouping of Earthworks," and "Osteological Remains." We trust the enterprise will meet with the encouragement it well deserves. The volume is published by George A. Bates, Naturalists' Bureau, Salem, Mass.

AN unusually severe shock of earthquake was felt at Fribourg on Sunday, the 19th inst., about 11 a.m. A smart earthquake shock was felt at Morat at 8 o'clock, a.m., on the 21st, and another twelve hours later at Fribourg, which, though of shorter duration than that of Sunday, caused considerable alarm. An earthquake took place at Wellington, New Zealand, on July 28.

A SILESIAN Botanical Exchange Club has been established, evidently intended for the exchange of specimens among botanists of all countries. A copy of the rules may be obtained by applying to Herr Adolph Toepffer, Bandenburg an der Havel, Prussia.

DR. HECTOR, of the New Zealand Geological Survey, expresses his opinion that in Westland and Otago vast auriferous racts remain as yet untouched.

"THE Monthly Index to Current Periodical Literature, Proceedings of Learned Societies, and Government Publications," published at the office of the *American Bookseller*, New York, seems to us a very useful publication.

THE passage of the meteor referred to in Mr. Thwaites' letter last week, occupied one and a half, not eleven and a half seconds.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Major Gape; an Egyptian Jerboa (*Dipus aegyptius*) from Egypt, presented by Dr. Hastings; a Cape Bucephalus (*Bucephalus capensis*) from South Africa, presented by Mr. C. B. Pillans; two Black-faced Spider Monkeys (*Ateles ater*) from East Peru, a Southern River Hog (*Potamochoerus africanus*) from South Africa, a Razor-billed Curassow (*Mitua tuberosa*) from Guiana, a Yarrell's Curassow (*Crax carunculata*) from South-East Brazil, a Blue and Yellow Macaw (*Ara ararauna*), two Orinoco Geese (*Chenalopex jubata*) from South America, two Rufous Tinamous (*Rhynchotus rufescens*) from Brazil, deposited; a Common Rhea (*Rhea americana*) from South America, a Spotted-billed Toucanet (*Selenidera maculirostris*) from Brazil, an Electric Silurus (*Malapterurus beninensis*) from West Africa, purchased.

BIOLOGICAL NOTES

TRANSVERSE COMMISSURE IN ARTHROPODS.—From a recent memoir laid before the Belgian Academy by M. Lienard (*Archives de Biologie*, tom. i. fasc. 2), it would appear that an arrangement of the cephalic nerve-centres, hitherto thought to have been peculiar to Crustacea, is really to be found in nearly the whole of the Arthropoda. It has been long known that in Crustaceans, e.g., Decapoda, besides the super and sub-oesophagean ganglionic masses and their lateral connections, there is a well-marked transverse commissure, situated in front of the sub-oesophagean mass, and immediately behind the oesophagus. This commissure in other Arthropoda seems, from quite technical causes, to have escaped notice. M. Lienard finds it nearly everywhere among the Myriapoda, Coleoptera, Odonata, Lepidoptera, Hemiptera, Diptera (nymphs and larvae). He has dissected the complete ring in nearly 100 forms, belonging to 70 genera. He is trying to ascertain the origin of the fibres which form the transverse commissure.

THE HÆMATOPETIC FUNCTION.—In a recent paper to *R. Accademia dei Lincei*, Sig. Fletì describes the effects of splenotomy as observed by him in dogs. Some of these are as follows:—Immediately after the operation (the previous régime of life being maintained) the quantity of hæmoglobin increases for a short time, and more in old than in young animals. Next it diminishes much and progressively in old animals, but without reaching half the normal quantity. In a third phase there is a slow progressive increase, which by degrees brings the quantity up to and above the normal. In young animals the diminution is much less, and the quantity of hæmoglobin sooner reaches and surpasses the normal. In all cases the weight of the animal does not diminish, but may even considerably increase (under good hygienic and alimentary conditions). Sig. Fletì adds some chemical observations as to colorations obtained with hydrochloric acid and yellow prussiate of potash. It clearly appears (he concludes) that, the spleen being removed, the marrow of the bones does not compensate for its function. As the quantity of hæmoglobin first increases—and we cannot admit a real increase in production as resulting from splenotomy—we must suppose that in this brief period the failure of the spleen makes itself felt more in destruction than in production. The former of these functions comes to be compensated more quickly, and there is then a gradual diminution in production of hæmoglobin as a direct consequence of the spleen being absent, and this diminution is greater the less able the marrow is to act, i.e. the older the animal. When, finally, the hæmatopœtic function of the spleen has been completely compensated by the marrow of the bones, the quantity of hæmoglobin returns to the normal figure, and may even surpass it. Sig. Fletì is studying the influence of light on the production of hæmoglobin.

DEVELOPMENT OF LEPIDOSTEUS.—In an interesting memoir read at the last meeting of the British Association (Swansea) Prof. F. M. Balfour and Mr. W. N. Parker gave the results of their investigations of some larval forms of *Lepidosteus* which had been most liberally supplied to them by Prof. Alexander Agassiz. Some of the more important of these were:—1. That the segmentation was, as in the sturgeon, complete, but the larger segments of the lower pole very early fused together to form a yolk sac. 2. That the epiblast was divided into nervous and epidermic layers, and that the nervous system was formed by a solid thickening of the epiblast, as in Teleostei, and not by the closure of a groove, as in the sturgeon. 3. That the lens of the eye and auditory vesicle were developed from the nervous layer of the epidermis. 4. That the general relation of the embryo to the yolk, and the general characters of the germinal layers are precisely like those in Teleostei. 5. That there is present a suctorial disk in front of the mouth, with numerous papillæ, as was first noticed by Agassiz; this disappears in the adult, and is probably a persisting rudiment of a primitive vertebrate organ, remains of which are also found in the adhesive papillæ of larval ascidians, the adhesive disks of larval amphibians, &c.

VISCERAL ANATOMY OF HERRING.—Mr. F. W. Bennett calls attention to the following, it would seem new, fact in the visceral anatomy of this common fish (*Journ. Anat. and Physiol.*, July, 1880). It possesses an extremely long air-bladder, which stretches towards the head, terminating near the labyrinth of the auditory organs. About the middle of its length it is connected by a duct with the stomach. The latter is capacious and elongated; while the commencement of the mid-gut is near the gullet the posterior portion of the stomach continues on into the ductus pneumaticus. This communication will be found most usually closed with mucus; but Mr. Bennett points out that there is another and a more important communication between the air-bladder and the cloaca. Till within one half-inch of this latter the air-bladder retains its well-known and beautiful silvery appearance; this then suddenly ceases, and the remainder of the bladder is muscular. This will account perhaps for its having been overlooked so long; what the exact uses of this passage may be are not yet known, but it is certain that it affords freer passage for gas than the duct leading into the stomach. Bristles may be readily passed through it, and gas may be made to bubble out if slight pressure be carefully applied under water. The usual arrangement of the apertures of the cloaca is as follows:—In front lies the anus, then the generative aperture, and hindmost of all, the urinary duct opens; the opening of the duct now described by Mr. Bennett lies between the anus and the urinary aperture, and usually to the left of the genital aperture.

MONSTROUS BEETLES.—Mr. Horace F. Jayne has recently published, in the *Trans. American Entom. Soc.*, vol. viii. pp. 155–62, Pl. IV., descriptions of some monstrosities observed in North American Coleoptera, all of which belong to that class to which the terms "Monstra per excessum" and "Monstres polyméliens" have been applied. They belong to the genera *Calosoma*, *Cychrus*, *Melrius*, *Psomachus*, *Scarites*, *Dyschirius*, *Chlenius*, *Lichnanthe*, *Polyphylla*, *Strategus*, *Telephorus*, *Priopus*, *Eleodes*, and *Helops*, and form an interesting addition to the already numerous recorded instances of this kind of monstrosity in beetles. All show a tendency to reduplication in some of the cephalic or thoracic appendages. In some it is the antennæ, in others the palpi, in others the legs, that are thus affected, and in some cases the tendency is exhibited in more than one of these appendages in the same individual. Beetles appear to be particularly liable to the production of such monstrosities, but it is probable that no parallel instance like that here recorded and illustrated by Mr. Jayne in an example of a longicorn beetle (*Priopus californicus*) has been noticed. In it each maxillary palpus has two terminal joints, and each femur has two perfectly-formed tibiæ and tarsi, with the claws, &c., the whole monstrous development being remarkably symmetrical; the labial palpi and the antennæ are normal, as is all the rest of the insect. Mr. Jayne contents himself by describing and figuring these interesting monsters, and does not venture upon any suggestions as to causes, in which he is perhaps wise, considering the uncertainty that exists as to the origin of parallel monstrosities in animals far higher in the scale. Reduplication of cephalic, thoracic, and probably abdominal appendages in the Arthropoda is by no means rare, but it is possible that a distinct combination of two individuals more or less united in one, such as is sometimes found in vertebrates, does not exist.